IKEA PLACE APP- AUGMENTED REALITY (AR) TECHNOLOGY SOLUTION AND INTEGRATION

# TECHNOLOGY CHOSEN- AUGMENTED REALITY

In 2017, IKEA launched the IKEA Place, an augmented reality application that allows customers project digital 3D images of their furniture directly into their homes. This enables customers to confidently experience, experiment and share how the furniture transforms any space, such as home, office, school or studio. The products available on the IKEA place app are also true to scale so that every choice is just the right size, design and function. The app automatically scales products based on the room dimension with a 98% accuracy.

In addition to digitally placing the products in a room, the app allows people to capture the setting in the app and share the image or video with friends.

# WHAT IS AUGMENTED REALITY (AR)?

Augmented Reality is the integration of digital information with the user’s environment in real time. AR delivers visual elements, sound and other sensory information to the user through a device like a smartphone, glasses or headset and as a result, users experience a real-world environment with perceptual information overlaid on top of it. This information is overlaid onto the device to create an interwoven and immersive experience where digital information alters the user’s perception of the physical world. This overlaid information can be added to an environment or mask part of the natural environment. The technology requires hardware components, such as processor, sensors a display and input devices. Mobile devices, like smartphones and tablets, already have this hardware onboard, making AR more accessible to the everyday user. Mobile devices typically contain sensors, including cameras, accelerometers, Global Positioning System (GPS) instruments and solid-state compasses. For AR applications on smartphones, for example, GPS is used to pinpoint the user’s location, and its compass is used to detect device orientation.

# HOW DOES THIS SOLUTION WORK IN IKEA?

In order to visualize a product within a space, the application spans the expanse of the room using the device camera. Users can browse through the IKEA products on an online database to make their selections. Once chosen, users must point the device to the desired spot in the room, them drag and drop the selected product onto the space. IKEA place can also save a user’s favorite products, share their selections on social media and facilitate direct purchases through the IKEA website. This solution also incorporates 3D modelling and product visualizers.

# WHY WAS THIS TECHNOLOGY CHOSEN?

The IKEA place app using Augmented reality was launched to solve practical problems surrounding furniture shopping. Not only will this take the hassle of furniture shopping off, it will also eliminate the burden of returning any furniture that does not fit. With this App, IKEA creates a service-centered value as it signals that it understands the hurdles involved in furniture shopping and extends support. Among other possible solutions, the IKEA chose virtual reality because of these specific benefits AR would provide:

* **Helping customers make decisions:** Augmented Reality allows customers to see how products will look in their space, which will help them make the best decisions and make them feel more confident about their purchase.
* **Enhancing the online shopping experience:** This solution provides a contactless and engaging shopping experience for customers as it allows customers to try many different products, styles and colors in real-life settings
* **Reduce returns:** Since customers already have a visual representation of how the furniture looks and fits in with their space, there are less chances of customers returning their purchases due to size or design misfits.

# WHAT WERE THE ALTERNATIVE TECHNOLOGIES?

* Virtual Reality: Virtual reality (VR) is an alternative to augmented reality (AR) in retail. VR can create fully immersive experiences, but it requires a headset and computer hardware, which limits its use. It can be useful for creating product demos, virtually try on products, virtual showrooms and virtual environments.
* Interactive Kiosks: These are touchscreen displays in stores to browse products, get information or customize products.

# HOW WAS THIS TECHNOLOGY IMPLEMENTED

The IKEA place app using augmented reality was built by expert app developers using Apple’s ARKit. The App was among the pioneers that took advantage of the ARKit that Apple provided to developers as an AR framework. With the aid of a freely downloadable app, customers would be able to try out furniture in their homes before buying. With this free App, IKEA creates a service-centered value as it signals that it understands the hurdles involved in furniture shopping and extends support. A chatbot is built into the app to help users navigate the technology. The bot instructs users on where to aim their camera and gently corrects them when they use it incorrectly. Seamless social media integration also makes sharing the images on videos simple. It is as easy as snapping the space and selecting the item. The app automatically scales the chosen product to the size based on the shopper’s room directions with some 99% accuracy. Furthermore, the ability to see the texture of the fabric and rendering of the light and shadows is an important feature too.

The App was implemented through the combination of strategic business planning, design and technology. The steps involved were:

1. **Identifying the need:** IKEA recognized the challenges customers faced in visualizing furniture in their spaces before buying, which led to hesitation or returns.
2. **Choosing the Technology:** IKEA partnered with Apple and Google to leverage ARKit (for iOS) and ARCore (for ANDROID) which provided AR functionalities. They also incorporated 3D modeling to render models of products with accurate dimensions and textures. Cloud integration was also necessary for real-time updates of product catalogs, pricing and availability.
3. **Design and development:** The app was designed with a minimalistic and intuitive interface to align with IKEA’s brand and appeal to a global audience.
4. **Testing and iteration:** Extensive testing was done to identify bugs, improve usability and ensure accuracy. Feedback was collected and used to refine features
5. **Integration with IKEA systems:** The app was synchronized with IKEA’s product database to display the latest items, prices and details.
6. **Marketing and launch:** IKEA Place was prominently featured during Apple’s launch event for ARKit, gaining significant visibility, social media, email newsletters and IKEA website were also used to promote the app.
7. **Post-launch support:** The app was regularly updated to improve performance, add new products and introduce new features.

# WHAT WERE THE CHALLENGES?

The IKEA place app faced several challenges during its development and implementation, mainly because it aimed to incorporate artificial intelligence. Below are some key challenges:

* **Technological limitations:** Not all smartphones could support AR technology, particularly older models and high-quality AR experiences require significant processing power which could lead to slow performance on lower-end devices.
* **Accuracy and calibration:** The AR features performance varied based on the lighting conditions of the user’s environment leading to inconsistent results. Issues with incorrect scaling or improper alignment with real-world surfaces also impacted results and users’ trust in the app.
* **App size and speed:** Including AR features increased the app’s size which could deter downloads and users expected fast performance despite the technology’s demands.
* **Cost and resource demands:** AR technology requires significant investment in software development and testing. It also requires regular updates to improve functionality, add products, which increased cost.
* **Measuring ROI:** Quantifying the app’s impact on sales and customer satisfaction was challenging, especially in the early stages.
* **Market Adoption:** Educating customers about the app’s capabilities and convincing them to use it was also challenging. In some markets, users were less familiar or comfortable with AR technology, which affected its adoption.

# HOW WILL AUGMENTED REALITY (AR) EVOLVE IN THE FUTURE?

Augmented reality is poised for significant evolution as technology advances and becomes more integrated into everyday life. Here is how AR is expected to evolve in the future:

* Smaller and more powerful devices like AR glasses and contact lenses
* AI integration for personalized experiences, smart object recognition and Natural Language Processing
* Expansion into everyday life with retail and ecommerce, and healthcare
* Integration with other technologies like virtual reality (VR) leading to mixed reality (MR) experiences
* Integration with Internet of Things (IoT) devices enabling smarter homes, factories and cities
* Accessibility and inclusion with visually impaired individuals, such as object recognition and navigations aids.
* Ethical and privacy considerations with stringent controls on data collection and sharing, and content moderation.

# COMPARING WITH COMPETITORS

Comparing IKEA’s IT infrastructure and strategy with its competitors reveals differences in their technological approaches, digital transformation priorities, and overall business alignment. Below is a detailed analysis:

1. IKEA’s IT Infrastructure and Strategy

Key Features:

* Centralized IT Framework: IKEA operates on a centralized IT system managed by its parent company, Ingka Group, ensuring uniformity across global operations.
* Focus on Customer-Centric Technology: Investments in augmented reality (e.g., IKEA Place app), virtual reality, and 3D modeling enhance customer experience.
* Omnichannel Integration: Seamless integration of physical stores, e-commerce platforms, and mobile apps, providing a consistent experience.
* Cloud Adoption: Migrating to cloud services for scalability, cost reduction, and improved data accessibility.
* Data-Driven Insights: IKEA leverages big data and analytics to optimize supply chain management, inventory, and customer behavior insights.
* Sustainability Focus: IT systems are aligned with IKEA’s sustainability goals, including energy-efficient data centers and digital tools for eco-conscious shopping.

Strengths:

* Pioneering AR and VR technologies for retail.
* Strong focus on sustainability and innovation.
* Efficient supply chain and inventory management systems.

Challenges:

* High costs associated with continuous technological upgrades.
* Limited flexibility due to centralized IT systems.

2. Competitor Strategies

Amazon

Key Features:

* Cloud Dominance: Amazon Web Services (AWS) powers its operations and is a global leader in cloud infrastructure.
* Advanced AI and Machine Learning: Personalized recommendations, voice-activated shopping via Alexa, and predictive analytics.
* E-commerce Focus: Optimized platforms for fast, scalable, and reliable online shopping experiences.
* Global Logistics Network: Real-time tracking, automated warehouses, and drone deliveries.
* Extensive Data Utilization: In-depth customer insights for dynamic pricing and targeted marketing.

Strengths:

* Industry-leading cloud and AI capabilities.
* Unparalleled logistics and fulfillment systems.

Challenges:

* Heavy reliance on data raises privacy concerns.
* Higher environmental footprint compared to IKEA.

Wayfair

Key Features:

* Cloud-First Strategy: Uses Google Cloud for scalability and efficiency.
* AR and Visualization Tools: Virtual try-before-you-buy options for furniture and home decor.
* Data Analytics: Predictive modeling to understand customer preferences and optimize supply chain operations.
* Omnichannel Innovations: Focus on digital-only retailing, avoiding physical store costs.

Strengths:

* Agile cloud-based infrastructure.
* Specialized in home goods, enabling focused innovation.

Challenges:

* Lack of physical stores limits customer touchpoints.
* Higher reliance on digital advertising for customer acquisition.

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